AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended): A method for adaptively searching a feature vector space, the method comprising the steps of:

(a) performing a similarity measurement on a given query vector within the feature vector space; and

(b) applying search conditions limited by the result of the similarity measurement obtained in the step (a) and performing a changed similarity measurement on the given query vector,

wherein the step (b) further comprises the sub-steps of:

(b-1) obtaining candidate approximation regions by performing approximation level filtering according to a distance measurement limited by the result of the similar measurement obtained in the step (a); and

(b-2) performing data level filtering on obtained candidate approximation regions and

wherein step (a) comprises the sub-steps of:

(a-1) obtaining a predetermined number of nearest candidate approximation regions by measuring the distance between the query vector and each approximation region; and

(a-2) obtaining K nearest neighbor feature vectors by measuring the distances between all feature vectors in the obtained candidate approximation regions and the query vector, where K is a positive integer.

2-3 (canceled).

4. (currently amended): The method of claim 1 ~~3~~, wherein the step (b-1) comprises the steps of:

(b-1-1) calculating a K'-th shortest distance for said plurality of K nearest neighbor feature vectors obtained by said second plurality of distance measurements according to a changed distance measurement where K' is a positive integer, and setting a calculated distance as r^u_{t+1}; and

(b-1-2) calculating K'-th smallest lower bound limit for said plurality of predetermined number of nearest candidate approximation regions obtained by said first plurality of distance measurements according to said changed distance measurement and set as ϕ^u_{t+1}.

5. (original): The method of claim 4, wherein the step (b-1) further comprises the steps of:

(b-1-3a) measuring a distance $L_i(W_{t+1})$ between said lower bound limit of at least one said nearest candidate approximation region and said query vector to determine a first new distance measurement, wherein N is a positive integer denoting the number of objects in the feature vector space and i is a variable ranging from 1 to N;

(b-1-4) comparing the distance $L_i(W_{t+1})$ obtained in the step (b-1-3a) with a minimum value min (ϕ, r^u_{t+1}, ϕ^u_{t+1}) of K-th smallest upper bound limit ϕ, r^u_{t+1}, and ϕ^u_{t+1}; wherein

(b-1-5) if the distance Li(Wt+1) is less than or equal to the minimum value min (ϕ, r^u_{t+1}, ϕ^u_{t+1}) setting a corresponding approximation region as a new candidate approximation region; and

(b-1-6) if the distance $L_i(W_{t+1})$ is greater than the minimum value min (ϕ, r^u_{t+1}, ϕ^u_{t+1}), excluding the corresponding approximation region.

6. (original): The method of claim 5, wherein the step (b-1) further comprises the steps of:

(b-1-3b) measuring a distance $U_i(W_{t+1})$ between the upper bound limit of at least one said nearest candidate approximation region and the query vector for a second new distance measurement, assuming that N is a positive integer denoting the number of objects in the feature vector space and i is a variable ranging from 1 to N;

(b-1-7) updating the K-th smallest upper bound limit ϕ based on the distance $U_i(W_{t+1})$.

7. (original): The method of claim 5, wherein the steps of (b-1-1) - (b-1-6) are repeated until the approximation level filtering is performed on all said candidate approximation regions in a database, wherein all the candidate approximation regions in said database is denoted by a positive integer (N), which represents a number of objects in said database.

8. (original): The method of claim 6, wherein the steps of (b-1-1)-(b-1-6) are repeated until the approximation level filtering is performed on all said candidate approximation regions in a database, wherein all the candidate approximation regions in said database is denoted by a positive integer (N), which represents a number of objects in said database.

9. (currently amended): The method of claim 1 ~~3~~, wherein the step (b-2) comprises the steps of:

(b-2-1) performing a third distance measurement between each of all feature vectors in said plurality of nearest candidate approximation regions and the query vector; and

(b-2-2) determining K' nearest neighbor feature vectors as retrieved vectors depending on the result of said third distance measurements performed in the step (b-2-1).